



Special Contribution

Integrative Medicine: An Academic Discipline?

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Is complementary/alternative medicine (CAM) a suitable academic discipline to support an organized program of research and education? St. John's Wort (*Hypericum Perforatum*), an herbal remedy sold over the counter, has been widely touted in the popular media as a treatment for clinical depression, although its effectiveness has not been established in controlled clinical trials and there is little information available regarding its basic pharmacology. Recently, a controlled study in human volunteers showed that blood levels of indinavir, a protease inhibitor used in a treatment of AIDS,¹ and cyclosporin, a drug used to prevent transplant rejection,² were markedly reduced in patients taking St. John's Wort. An FDA public health advisory warning concluded that St. John's Wort induces the cytochrome P450 system, a key pathway for the metabolism of many prescription drugs, including those used to treat heart disease, depression, seizures and certain cancers and to prevent pregnancy (oral contraceptives). The warning concluded that the therapeutic effects of these drugs could be markedly reduced by concomitant administration of St. John's Wort.

Although millions of people across the United States now routinely use complementary and alternative therapies, the fact remains that little credible scientific information exists with regard to the effectiveness and safety of many of these therapies. The controversy surrounding St. John's Wort is an example of a situation in which inadequate investigation of a widely available health care product has created a public health problem with significant potential impact on the health of individuals and groups of individuals in our society.

There is no denying that CAM has become big business. A 1997 report estimated that over 42 percent of Americans were using complementary and alternative therapies.³ Furthermore, another survey completed in 1997,⁴ concluded that out-of-pocket expenditures relating to alternative therapies, estimated at \$27 billion annually, were comparable to projected out-of-pocket expenditures for all U.S. physician services. Furthermore, the number of annual visits to alternative healers now exceeds the number of total visits to U.S. primary care physicians.

The growing importance of CAM as a public health issue was validated by the United States Congress when it expanded the Office of Alternative Medicine. It was established at the National Institutes of Health in 1991 to create the National Center for complementary and alternative Medicine (NCCAM),⁵ a center charged to conduct and support basic research in the effectiveness and identification of complementary and alternative medicine treatments and systems. There is now a large amount of federal funding available to study issues related to complementary and alternative medicine through the NCCAM.

History teaches that some alternative and complementary thera-

pies in widespread use have beneficial effects on the treatment or prevention of disease. Acupuncture, for example, is widely employed around the world as a technique for the management of pain. A number of important medications, including digitalis, quinine, colchicine, and morphine, are plant derivatives that have been known to herbalists and traditional healers for many years.⁶ What other plant based compounds have valuable therapeutic properties? Why does prayer or spiritual belief seem to have a positive effect on recovery from illness? These and many other questions about CAM await answers. Then there are the policy questions, many of which have been inadequately debated and studied. For example, why are people in growing numbers turning to alternative therapies? Is this a reaction to inadequacies perceived in the health care establishment or the training of western physicians? Should herbal medications be subject to FDA certification/regulation for safety and efficacy or as "natural" products should they be exempt?

Given these questions and their importance to the health and well-being of our citizens, it is appropriate to study CAM or "integrative" medicine, as some prefer, as an academic discipline. Furthermore, at the John A. Burns School of Medicine of the University of Hawaii (JABSOM), we believe that it is incumbent upon the school to conduct research in areas of particular interest to Hawaii and the Pacific Region. In addition, we have the responsibility for educating the next generation of physicians that will care for the people of our state and region. While CAM is an important issue nationally, it may be even more important here in Hawaii. With our unique blend of cultures and ethnicities, many healing traditions, some of ancient origin, are represented here in our islands. Our local citizens make use of these healing arts frequently, and often in unusual combinations not seen elsewhere. This poses challenging dilemmas for our practicing physicians but unique research opportunities for our scientists. Given the intersection of cultures here in Hawaii, the state is an ideal laboratory for the study of the use, efficacy and safety of alternative therapies. Given the lack of good scientific information about many of these therapies, JABSOM researchers can play an important role by doing credible scientific evaluations of the alternative therapies used in our community. JABSOM can also explore the use of plant extracts and other natural substances as potential, but as yet unknown, therapies. These studies can give patients information to make informed decisions about therapeutic options available to them, can develop new therapies and can provide an opportunity to evaluate how traditional healer and western allopathic physicians can work together to optimize the health of patients.

It is also important for JABSOM's educational responsibilities to teach medical students about the potentials and risks of alternative therapies, as well as their impact on conventional western drugs and therapies. It is important that we take an evidence-based approach to this task and present students with scientific data regarding the efficacy and safety of alternative therapies. We must also discuss with them the use of a nonjudgmental approach to patients using alternative therapies so that patient trust and confidence in western physicians is maintained.

Although few medical schools have yet established departments of integrative medicine, it is clear from many sources that alternative and complementary medicine has become a major public health issue for the United States. Congress has recognized this fact by the

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creation of the NCCAM. JABSOM believes that it can be a leader in the United States, and internationally in the credible scientific study of alternative and complementary therapies. Furthermore, JABSOM believes that it is important to educate medical students about the therapies that their patients are using which may augment or detract from conventional allopathic medicine. For these reasons, we believe it is important to start a Department of Integrative Medicine at the John A. Burns School of Medicine.

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perceived effect. Another withdrawal was for travel. Ten patients completed the study.

Results obtained for the monitored parameters are summarized in Table 1. Thirty days of active magnet use improved pain, perception of function, and the range of motion of the joint, while reducing the duration of morning stiffness in the knee, and increasing the range of motion. No effect was noted on joint swelling, circumference, or time needed to walk 50 feet.

Cartilage, like bone, has piezoelectric properties leading to electrical outputs thought to be capable of stimulating chondrocyte synthesis of matrix components.⁵ Similar electrical changes may occur through Faraday induction from applied time-varying electromagnetic fields. Complex chemical responses are detectable within 48 hours of PEMF exposure.⁶⁻⁸

Although pain, morning stiffness, and range of motion appear to be beneficially affected by the active field used in this study, further sampling with appropriate statistical evaluation is necessary for valid quantitative conclusions. Extended studies should be designed to histologically determine whether PEMF exposure has true chondroprotective or repair potential in the intact joint, or both.

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